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August 9th, 1958

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No. 32 AUGUST 9th, 1958 Vol. 70

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Clinical Studies on Bovine Ketosis. 1.—Reduced Milk Yield Associated with Subclinical Ketosis

BY

RICHARD H. C. PENNY

Leighton Buzzard

SUMMARY.—1. *An outbreak of subclinical ketosis in an Ayrshire herd has been investigated.*

2. *The highest percentage of cows positive to a modified Rothera's test was in March but the most marked reactions were in February.*

3. *In many cows there was a marked alteration in the anticipated milk curve with reduced yield.*

4. *Daily fluctuations of up to 10 lb. were frequently observed.*

5. *Following a reduction of more than 50 per cent. in the silage fed there was a rapid fall in the number of cows excreting ketones. There was also a marked reduction in the ketone levels. A further, less spectacular fall, occurred when the cows were turned out to grass.*

IN this country several authors, *viz.* Boddie (1933), Eden and Green (1940), McEwen and Foggie (1950), and Holmes (1950), have reported an increase in ketones in the urine, milk, and blood of cattle during the winter months, whereas in Jersey, Messervy (1943) found the highest incidence of marked acetonaemia in July and August, with mild acetonaemia also fairly common in July. In the U.S.A. Sampson and Boley (1945) found that the average concentration of ketone bodies in the blood of lactating cows was higher in June and July than in November and January. Horrocks and Paterson (1957), in Britain, found that blood ketone levels were lowest in January and September and stated that their results were not in conflict with those of Sampson and Boley (*loc. cit.*); volatile fatty acids were higher in the winter months.

Most of these authorities have stressed the apparent lack of effect these high ketone levels had on the health of the animals concerned but McEwen and Foggie (*loc. cit.*) observed "that Ketosis is indicative of subnormal health, and therefore any system of management that reduces the incidence of Ketosis is favourable to the maintenance of bodily fitness." Silverman (1957) discussing the applications of glycerine in veterinary medicine says that cases of subclinical ketosis are quite prevalent and while it does not endanger life it causes a great depression in milk production. In the writer's practice an opportunity occurred to verify Silverman's assertion.

Materials and Methods

During the winter of 1953-4 a relatively high incidence of spontaneous ketosis in recently calved cows was encountered in an Ayrshire herd and it proved very resistant to the usual methods of treatment. Supplies of ACTH became available towards the end of the winter and three long-standing cases recovered after subcutaneous injection of 25 to 50 I.U. ACTH. A further two animals responded to two injections. Milk samples and occasional blood samples were used to confirm the clinical diagnosis and no cases of the nervous type of acetonaemia were encountered. In previous years ketosis had been a problem on this farm, and in view of this it was decided in the winter of 1954-5 that the herd provided an opportunity for evaluating the use of ACTH as a treatment.

In order to diagnose new cases as soon as possible, arrangements were made to test the milk of each cow once a week, beginning November 26th, 1954. The modified Rothera's test described by Paterson (1945) was used and the colour reaction graded from negative to four positives according to the intensity. Samples were taken in screw-topped bottles at the

Friday evening milking. and were usually examined that night, although occasionally they were left until Saturday morning.

The ration fed was as follows:—

Maintenance. Silage 60 to 80 lb. approximately daily. Hay 7 lb. approximately, sometimes meadow hay and at others Lucerne. The latter was not relished, although the feeding value was good.

Production. Over the first two gallons, at the beginning of the winter, and over the first gallon towards the end, 4 lb. of the following mixture per gallon:—

4 parts oats;
1 part groundnut meal or equivalent;
5 parts (20 per cent. crude protein) lucerne meal in the form of cubes.

The silage was reduced to 25 to 30 lb. and the hay proportionately increased on March 6th, 1955. Throughout the winter the cows were turned out for exercise after breakfast and brought in for silage feed at 12 noon. Their hay was fed at night. They were turned out to grass in April.

It was as a result of this attempt at early diagnosis of clinical ketosis that the large number of subclinical cases was revealed. Since daily milk recordings were made it was decided to graph these, and to mark on the graphs the results of the tests for ketone bodies, and thus attempt to relate loss of yield to level of milk ketone bodies. In a later paper the use of ACTH will be evaluated in this herd.

The dates on which samples were taken, the number tested, the response, etc., can be seen in the accompanying Table. The block graph (Fig. 1) shows the percentage of cows excreting

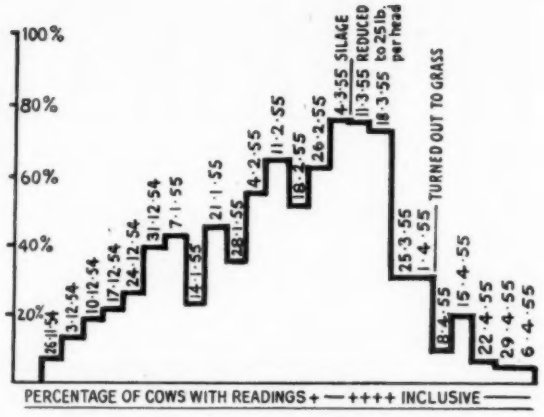

FIG. 1

ketones + − ++++ inclusive. Despite some irregularities there was a fairly steady rise until a peak was reached on March 4th. A dramatic fall in the number of positives occurred during the week March 18th to 25th, 1955. This followed a reduction in the silage ration by more than a half on March 9th and an increase in the hay. Two weeks were required for this spectacular fall, but several authors have reported the apparent association between silage feeding and ketosis (Brouwer & Dijketra, 1938; Johnson, 1951; White, 1952). A further sharp fall occurred immediately the cows were turned out on April 3rd, 1955.

Although the highest percentage of positives occurred in March the most marked reactions

TABLE I

RESULTS OF MODIFIED ROTHERA'S TEST

Date	Number of Samples	++++	+++	++	+	+-	-
26.11.54	30	–	1	–	–	–	29
3.12.54	30	1	1	1	2	–	25
10.12.54	28	–	–	3	1	2	22
17.12.54	28	1	1	2	2	–	22
22.12.54	27	1	–	3	3	2	18
31.12.54	30	1	2	1	6	7	13
7. 1.55	30	1	1	3	8	4	13
14. 1.55	30	–	3	1	2	5	19
21. 1.55	33	–	3	5	8	8	9
28. 1.55	35	2	2	1	8	5	17
4. 2.55	36	5	2	5	8	5	11
11. 2.55	35	3	3	5	12	3	9
18. 2.55	39	6	5	2	7	12	7
25. 2.55	43	3	6	2	16	3	13
4. 3.55	42	5	2	10	15	7	3
11. 3.55	41	4	4	8	14	4	7
18. 3.55	40	1	5	5	18	4	7
25. 3.55	44	3	1	1	8	7	24
1. 4.55	42	3	–	1	9	3	26
9. 4.55	42	1	–	2	1	–	38
15. 4.55	44	–	2	1	3	4	34
22. 4.55	45	–	–	–	2	2	40
29. 4.55	45	–	–	–	2	1	42
6. 5.55	49	–	–	1	1	1	46

++++ and +++ were encountered in February. On February 18th there were 11 such reactions, and 9 + and ++ out of 39 samples examined. On March 4th. the day of the herd's Ketosis peak, there were 7 ++++ and +++, and 22 + and ++ out of a total of 42 examined.

From the daily graphs (yield in lbs. against days calved) it was soon observed that there were considerable fluctuations in individual yields, 10 lb. being noticed frequently. Later in the lactation as the yield decreased, and possibly as the ketone excretion declined, there were fewer such irregularities. In earlier and later lactations, graphed to the same scale, there appeared to be many fewer 10-lb. variations and 5 lb. was considered quite a large rise or fall.

Six representative graphs have been reproduced showing the milk curves of cows with marked reactions to Paterson's test but no typical clinical symptoms of acetonaemia. Total weekly milk yields have been graphed against weeks calved. Peak yields in 5 of these were around 15 to 20 weeks after calving and in one 11 weeks after calving. Where possible the curve for the subsequent lactation has been superimposed on the original graph, but in the case of Shona IV no satisfactory lactation has been recorded since. Two others suffered from serious illness the year following therefore their next lactation but one has been taken.

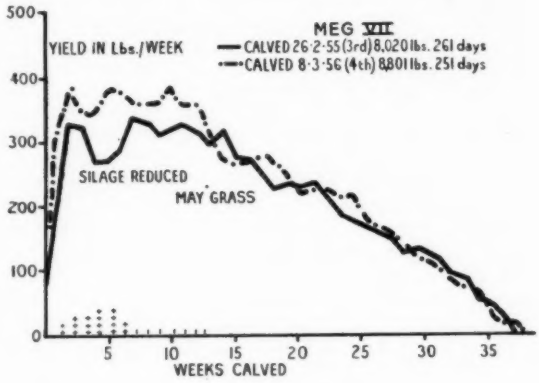

FIG. 2

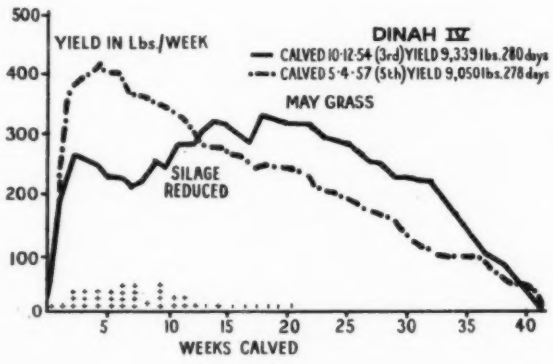

FIG. 3

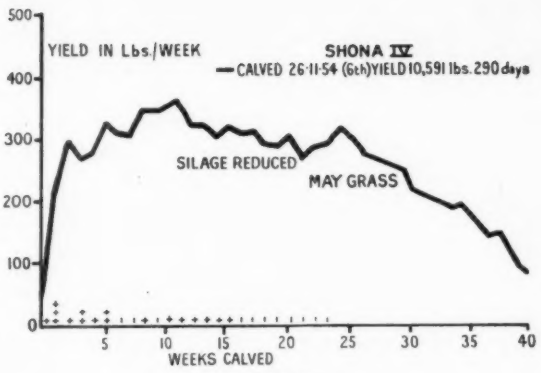

FIG. 4

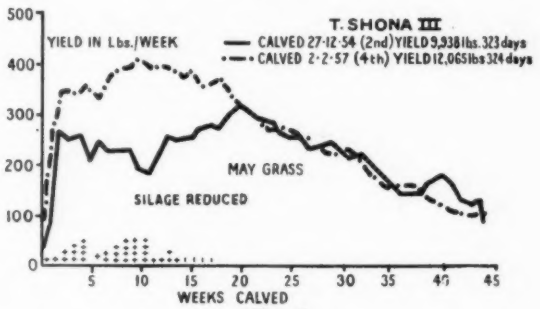
T. SHONA III
YIELD IN Lbs./WEEK
CALVED 27·12·54 (2nd) YIELD 9,938 lbs. 323 days
CALVED 2·2·57 (4th) YIELD 12,065 lbs 324 days
MAY GRASS
SILAGE REDUCED
WEEKS CALVED

FIG. 5

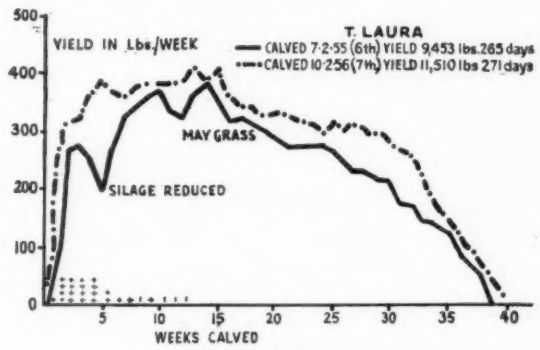

FIG. 6

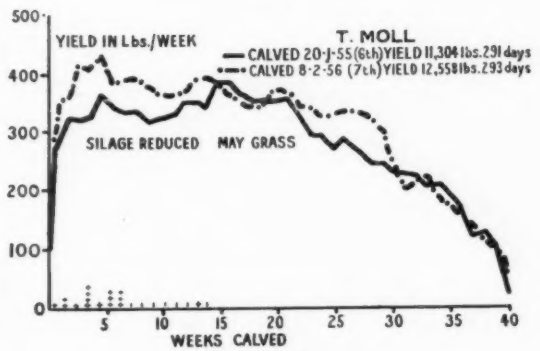

FIG. 7

Each graph shows the date of calving, total yield, duration and number of lactations, and the results of Paterson's test. Routine testing was not carried out during 1956 or 1957, but occasional herd tests revealed few positives.

Discussion

Opinions differ as to the exact time of the peak yield in the dairy cow. Fishwick (1952) gives the 6th to 10th week after calving. He states that generally there is a rapid rise during the first fortnight. There is then a small, but steady increase until the 6th to 10th week, the yield remains high for a short period and then falls. Garner (1948) gives the 3rd to 8th week as the peak period and Peterson (1950) quoting Woodward the 4th to 7th week. It will be observed that the 1956-7 milk curves follow the above pattern and resemble the reproduction of Woodward's curve much more closely than the 1954-5 graphs, although graphed to a different scale.

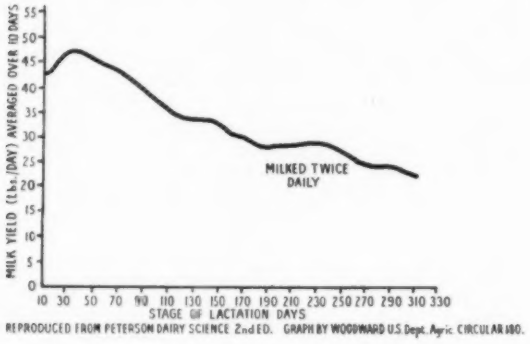

FIG. 8

It is appreciated that the superimposed graphs are not accurate for control purposes, as many factors such as the calving date, the number of lactation, variations in feeding, etc., must all effect the resulting curve. Despite this, the writer does not consider it normal for a 1,000-gallon cow (T. Shona III), calving on December 27th, to give no more than 4 gallons daily until mid April when 4½ gallons was reached. She then improved to 5 gallons in May. It is suggested that the yields in this herd were suppressed by the subclinical ketosis although it is possible that some of the initial loss may have been made up during the later stages of lactation.

In this article no attempt has been made to discuss the possible causes of the condition or the methods of treatment adopted. The writer hopes to do this at a later date. Four clinical cases were diagnosed, three on the severe fall in yield and one on the appearance of nervous symptoms. There was little loss of condition or constipation and only in the last case was food refused.

Acknowledgments.—My thanks are due to the *Farmers' Weekly* for permitting and encouraging these observations. To the staff of Grove Farm, Tring, for assisting with the collection of samples, etc. Also to Mr. R. M. Loosmore, Mr. S. L. Hignett, and Dr. A. Eden for help with the investigation. I wish to acknowledge the help received from my assistant Mr. J. H. S. Arnold and my lay staff. Finally I wish to thank Dr. G. H. Arthur for his interest and encouragement during the preparation of this article.

References

BODDIE, G. F. (1933). *Vet. Rec.* **13.** 1,128.
BROUWER, E., & DIJKETRA, N.D. (1938). *J. Agric. Sci.* **28.** 695.
DUNCAN, C. W., HUFFMAN, C. F., & TOBIN, H. A. (1939). *J.A.V.M.A.*, **95,** 690.
DYE, J. A., & MCCANDLESS, E. L. (1948). *Cornell Vet.* **38.** 331.
EDEN, A., & GREEN, H. H. (1940). *Vet. Rec.* **52.** 725.
FISHWICK, V. C. (1952). "Dairy Farming, Theory and Practice," 2nd Edit. Crosby Lockwood.
GARNER, F. H. (1948). "British Dairying," Longmans Green.
JOHNSON, R. B. (1951). *Cornell Vet.* **41.** 115.
HOLMES, J. R. (1950). *B. Vet. J.* **106.** 365.
HORROCKS, D., & PATERSON, J. Y. F. (1957). *J. Comp. Path.* **67.** No. 4. 331.
MCEWEN, A. D., & FOGGIE, A. (1950). *Vet. Rec.* **62.** 271.
MESSERVY, A. (1943). *Vet. Rec.* **55.** 379.
PATERSON, A. B. (1945). *B. Vet. J.* **101.** No. 9, 199.
PATTON, J. W. (1944). *Vet. Med.* **39.** 150.
PETERSON, W. E. (1950). "Dairy Science," 2nd Edit. J. B. Lippincott & Co.
SAMPSON, J., & BOLEY, L. E. (1945). *Cornell Vet.* **35.** 314.
SILVERMAN, M. J. (1957). *Vet. Med.* **52.** 278.
SYKES, J. F., DUNCAN, C. W., & HUFFMAN, C. F. (1941). *J. Dairy Sci.* **24.** 193.
WHITE, J. B. (1952). Report on Proceedings Conference on Metabolic Disorders B.V.A. 40.

JUNE, 1958, AGRICULTURAL RETURNS

The provisional results of the June, 1958, Agricultural Returns for England and Wales show increases in the numbers of ewes and lambs, and the total numbers are in effect back to about the pre-war level. There have also been further increases in the number of calves and of poultry. The total pig-breeding herd at June, 1958, is slightly below the level of March, 1958.

The total breeding herd of cattle is very slightly below the June, 1957, figure (by 10,000 or 0.3 per cent.), which implies no significant change in its size. There are 211,000 (12½ per cent.) more calves on farms than at June, 1957, the main increase coming from male calves, indicating a continued emphasis on calf retentions for beef.

The number of ewes for breeding (excluding shearlings) is 416,000 (6½ per cent.) up on last June, and there are 266,000 (nearly 20 per cent.) more shearling ewes. The sheep-breeding flock is continuing to expand rapidly, and the total is only 4 per cent. short of the pre-war average (1938-9).

There are 64,000 (10½ per cent.) more sows (including gilts) for breeding than in June, 1957, but this June, 1958, total breeding herd (671,000) is slightly below the total at March, 1958. It is reasonably clear, therefore, that the recent expansion in the breeding herd has now come to an end.

Arthritis in Chicks due to a variant strain of *Salmonella pullorum*

BY

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SUMMARY.—An account is given of 3 outbreaks of pullorum disease in broiler chicks, in which arthritis was a common feature. In each outbreak it was shown that a variant strain of S. pullorum *was responsible for the lesions (antigenic structure 9, 12_1, 12_2, (12_3) :—, :— :). The experimental reproduction of arthritis in chicks is described following the administration of cultures of the variant* S. pullorum.

Introduction

IN 1928, Doyle and Mathews found that, in pullorum disease in chicks, the liver was the most constant seat of gross lesions and was followed in order by the lungs, heart, gizzard and caeca. In chronic cases of the disease the causal organism frequently becomes localised in the ovary, testes and heart. Less common sites of localisation are in abscesses on the skin and legs (Bushnell, *et al.*, 1926), in subcutaneous abscesses over the sternal region and cystic enlarged thyroids, the nasal passages (Gwatkin & Glover, 1930), the thymus glands (Gwatkin, 1946) and the middle ear (Beech & Freeborn, 1927). Localisation in the joints would appear to be rare and has never been recorded in other than individual birds.

Isolated cases of arthritis in fowls due to *Salmonella pullorum* have been reported in the United States by Durant and McDougle (1932), and Beaudette (1936), and in Brazil by Reis (1942). The first-named workers observed the condition in 2 3-week-old chicks from different flocks. The birds were undersized and in each case the tibio-metatarsal joint was enlarged and inflamed. *S. pullorum* was isolated in pure culture from the swellings and from the synovial fluid. In the case reported by Beaudette (*loc. cit.*) the disease occurred in a single White Leghorn chick about 3 weeks of age. The tibio-metatarsal joint of each leg was affected by a fluctuating swelling due to the presence of subcutaneous lemon-coloured gelatinous material. Cultures of this gelatinous material yielded a pure growth of *S. pullorum*. The only recorded case in a mature fowl is that described by Reis (1942) who found arthritis of the tibio-metatarsal joint, due to *S. pullorum*, in a hen.

The purpose of this article is to describe naturally occurring outbreaks of disease in chicks due to a variant strain of *S. pullorum*, in which arthritis was a prominent feature and to report the experimental reproduction of the condition.

Methods

Bacteriological examination consisted of primary cultures onto blood agar and MacConkey plates from the heart, liver, spleen and joints of affected chicks. In addition, in the case of adult fowls the ovaries were cultured using selective media (Selenite F and desoxycholate citrate agar plates).

Non-lactose fermenting colonies resulting from growth on MacConkey plates were examined for their ability to ferment the following substances:—lactose, maltose, dulcite, sucrose, mannite, xylose, salicin and inosite, and for their ability to produce indole.

Cultures grown on nutrient agar slopes were tested by the slide agglutination method using Salmonella polyvalent "O," polyvalent "H" and somatic pure factor 9 (representing DO group of Kauffmann and White diagnostic scheme) sera.

Tube agglutination tests using both standard and variant *S. pullorum* hyperimmune sera were carried out with formolised nutrient broth cultures.

Growth from nutrient agar slopes were also used for slide agglutination tests to determine form variation using absorbed factor sera 12_2 and 12_3 according to the method described by Blaxland *et al.* (1956). Strains which gave a well defined agglutination with factor 12_2 but practically none with 12_3 sera were considered to be variant strains. (Standard strains are those with 12_3 antigen in a marked excess to 12_2 and intermediate strains are those which have both antigens equally well developed.) The results obtained on the slide tests were confirmed by the tube agglutination test.

Outbreak A

One thousand day-old R.I.R. x L.S. chicks had been supplied by a hatchery accredited under the Poultry Stock Improvement Plan and reared as broilers. By the time the chicks were 10 days old 160 deaths had occurred. During the following 2 to 3 weeks, mortality was low but deaths again became more frequent and specimens were sent to the Laboratory for diagnosis. Seventeen chicks were examined from this outbreak and all were undersized. Seven of them showed marked swelling of the joints; in 5 chicks the tibio-metatarsal joint was affected, in one case the foot was swollen while in another the humero-radial joint was affected. Four of the chicks had necrotic lesions in the myocardium and in 8 of the 17 there were discrete necrotic foci in the liver. After removing the skin it was seen that the swellings were due to the presence of orange-coloured cystic tissue of a gelatinous consistency surrounding the joints (Fig. 1). There was a slight excess of synovial fluid but no pus formation. Although cultures from the livers, joint swellings and synovial fluid onto blood agar and MacConkey plates gave negative results, transmission experiments, to be described later, led to the recovery of a variant strain of *S. pullorum* from material from these chicks. Failure to isolate the organism on primary culture

FIG. 1.—Natural case of arthritis of the left hock joint due to variant *S. pullorum*.

was probably due to the chronic nature of the lesions and the fact that selective media were not used.

Outbreak B

The same breed of birds was involved and the chicks had been purchased from the same hatchery as in outbreak A and reared as broilers. By the time the chicks were 5 weeks old losses were 25 out of 350. Of the remainder about half were in good condition, approximately one-fifth were poor while the remainder varied between these extremes. The poor specimens were said to eat reasonably well but they failed to develop either in size or feathering. At this stage 4 of them were sent here for examination. Three of these showed marked swelling of the tibio-metatarsal joint in one leg due to the presence of peri-articular orange-coloured tissue. In these specimens the livers were enlarged and contained discrete orange-coloured areas, and also multiple petechial haemorrhages. There were also petechial haemorrhages on the myocardium in one chick.

A variant strain of *S. pullorum* was isolated on primary culture from the livers of 3 of these chicks and from the hocks of all of them, including the one which showed no macroscopic enlargement.

Outbreak C

In this case R.I.R. x L.S. broiler chicks were involved and there had been a mortality of approximately 6 per cent. of 700 by the time the chicks were 5 weeks of age. Eight birds were examined from this source and all of them were affected with swollen joints, in 7 of them the tibio-metatarsal joint was affected while in the other specimen the femoro-tibial joint was involved. *S. pullorum* was isolated from the affected joints of all 8 chicks. The same organism was isolated from the livers of 2 of these chicks but not from the heart, liver or spleen of the other six. This organism also proved to be a variant type of *S. pullorum*.

Source of Infection

The chicks involved in outbreaks A and B had originated from an accredited breeding farm and a rapid whole blood test was carried out on the parent flock using a variant stained pullorum antigen produced at this Laboratory. Out of 772 Light Sussex pullets tested, 21 gave typical positive reactions while a further 13 were classed as doubtful having shown pin-point reactions. The doubtful reactors were re-tested one month later and all gave definite positive reactions. Blood samples from these 13 fowls were tested by the tube agglutination method using the standard and variant antigens with the results shown in the Table opposite.

The tube test titres of birds Nos. 1, 2, 3, 7, 10 and 12, which were higher to the variant than to the standard antigen, suggested that the infection in this flock was probably due to a variant strain of *S. pullorum*. This was confirmed when this type of organism was isolated from the ovary of 1 of 3 fowls sent from the flock for bacteriological examination.

The fact that the chicks involved in outbreaks A and B originated from the same source and the results of the rapid whole blood agglutination test in the parent flock, together with the isolation of a variant strain of *S. pullorum* from the ovary of one of the parent fowls, suggests that both outbreaks were the result of egg-borne infections.

It was not possible to trace the source of infection in outbreak C, but, as far as could be ascertained, it was not connected in any way with the other two.

Bacteriological Results

All strains isolated from both field and experimental cases failed to ferment lactose, maltose, dulcite, sucrose, salicin, xylose and inosite, but fermented mannite and glucose anaerogenically and failed to produce indole.

Serologically only trace agglutination was obtained with 12_3 factor serum while all strains agglutinated strongly with 12_2 factor serum. Therefore, they were regarded as variant strains. Their antigenic structure was: O=9, 12_1, 12_2, (12_3). H=Nil.

Experimental

1. In outbreak A routine bacteriological cultures were negative and it was decided to use material from these chicks for a transmission experiment. A small amount of the orange-coloured peri-articular tissue was ground up in a sterile mortar and a 10 per cent. broth suspension prepared. Four 4-week-old chicks were inoculated intravenously with 0.1 ml. of this emulsion and a similar dose was inoculated into the plantar pad of another chick. A Seitz EK filtrate was prepared from the inoculum and a group

Bird No.	Rapid serum test		Tube test titres					
			Standard Antigen			Variant Antigen		
	S	V	10	20	50	10	20	50
1	+++ slow	i/s	−	−	−	+++	+++	+++
2	+++ inst.	+++ inst.	++	+	−	+++	+++	+++
3	+++ „	+++ „	+++	++	−	+++	+++	+++
4	+++ „	+++ „	+++	+	−	+++	++	−
5	+++ „	+++ „	+++	+++	+++	+++	+++	+++
6	+++ „	+++ „	+++	+++	+++	+++	+++	+++
7	+++ „	+++ „	+++	+++	−	+++	+++	+++
8	+++ „	+++ „	+++	+++	+++	+++	+++	+++
9	+++ „	+++ „	+++	+++	+++	+++	+++	+++
10	+++ slow	+++ „	+++	++	−	+++	+++	+++
11	+++ inst.	+++ „	+++	+++	+++	+++	+++	+++
12	+++ „	+++ „	+++	+++	++	+++	+++	+++
13	+++ „	i/s	+++	+++	+++	+++	+++	+++

i/s = insufficient serum

of 5 4-week-old chicks were inoculated with this filtrate in precisely the same way.

The group of chicks inoculated with the Seitz filtrate remained healthy and were killed after 4 weeks. *Post-mortem* and bacteriological examinations failed to reveal any evidence of disease in this group.

All the chicks inoculated intravenously with the crude emulsion developed small subcutaneous orange-coloured nodules at the inoculation site which developed to a size of approximately 1 cm. before the chicks died. These 4 chicks died within 18 days of inoculation and from each of them *S. pullorum* was isolated from the livers. The chick which was inoculated into the plantar surface of the foot developed a large swelling at the inoculation site. It was killed 3 weeks after inoculation and the swelling was found to be due to a mass of orange-coloured tissue which yielded a pure growth of variant *S. pullorum* on culture.

2. The *S. pullorum* isolated from outbreak B was used in a second experiment to ascertain whether the arthritic condition could be reproduced by oral administration.

Twelve 4-day-old chicks were given an oral dose of 0.2 ml. of a 24-hour broth culture of the *S. pullorum* variant isolated from outbreak B and another 12 chicks served as a negative control group being given a similar amount of sterile broth. These remained healthy throughout the experiment.

Two of the experimental chicks died 9 days after administration and a further death occurred 7 days later. These 3 chicks had enlarged livers and spleens and a variant *S. pullorum* was recovered from these organs in each of them. Of the remaining 9 chicks, 2 developed swellings of the joints, in each case the left tibio-metatarsal joint was involved, 3 of the remainder were undersized, while the other 4 developed normally.

Blood samples were collected before the chicks were killed 6 weeks after infection and tube agglutination tests carried out. Five chicks were positive to the test using variant antigen with titres in two of 1:250, and in the other 3 of 1:125. They were all negative to the tube agglutination test (titres 1:10 or below) using standard pullorum antigen.

Post-mortem examination showed that in 3 chicks there was enlargement of the livers and spleens with necrotic foci in the livers and a variant strain of *S. pullorum* was recovered on culturing. The 2 chicks with joint lesions also showed enlargement of the livers and spleens and in one there was a single yellow nodule in the myocardium. *S. pullorum* was also recovered from the organs and swollen joints of these chicks. The remaining 4 chicks showed no evidence of disease and cultures were sterile.

Thus out of 5 surviving infected chicks 2 developed arthritic lesions.

3. In a third experiment, 25 day-old chicks were given an oral dose of 0.4 ml. of a 24-hour broth culture of the variant strain of *S. pullorum* isolated from outbreak C. Eight of these chicks died within 17 days showing massive necrosis and caseation of the lungs and enlargement of the livers. The site of the lesions suggested that they were due to aspiration of the organism during administration. The variant strain of *S. pullorum* was recovered from the lungs, liver and spleen in each case.

Three of the remaining 17 chicks developed arthritic lesions which were first observed 23 days after infection. In 2 cases the tibio-metatarsal joint was affected while in the third the foot became swollen. Serological methods showed that only 12 of the 17 were infected, so that 25 per cent. of infected chicks developed arthritis in this experiment.

One month after administration the survivors were tested by the rapid whole blood test for *S. pullorum* antibodies using both the standard and variant *S. pullorum* stained antigens and were tested weekly thereafter. On the first occasion 12 chicks gave a positive reaction to the variant antigen while 5 were negative. All 17 were negative to the standard antigen. Three months after infection 5 of the 10 surviving birds showed slow pin-point reactions to the standard antigen while the remainder were still negative. Tube agglutination tests of the 5 doubtful reactors showed a titre of 1:10 to the standard antigen in 2 chicks while the remainder were negative.

Using the variant antigen 2 chicks had a titre of 1:125, 1 of 1:50, 1 of 1:25 and 1 of 1:10.

Four months after infection 2 of the 3 surviving birds were still giving negative reactions to the standard stained antigen, although they were all positive to the stained variant antigen. Two of these birds were cases in which arthritis had developed and Figs. 2 and 3 show the left tibio-metatarsal joint of one of these fowls 4½ months after experimental infection *per os*. The variant strain of *S. pullorum* was isolated from this lesion.

Discussion

The variant type of *S. pullorum* isolated from the field cases of arthritis in chicks behaved in a similar manner to the standard type, when administered experimentally to chicks producing, initially, a septicaemia followed 2 to 3 weeks later by chronic infection in the survivors. During the initial phase, however, the mortality in experimental chicks was somewhat less than is usually the case with standard strains. In the chronic stage it appeared that in about 25 per cent. of cases the variant type of *S. pullorum* localised in the joints causing proliferation of peri-articular tissue and cyst formation. The tibio-metatarsal joint was most commonly affected in both the naturally occurring and experimentally induced diseases.

Although all the outbreaks occurred in broiler houses it is not thought that this particular form of management is specifically associated with the type of lesions and the fact that the condition could be reproduced in experimental chicks in the laboratory tends to confirm that environment is not a predisposing factor.

It is difficult to assess to what degree the predilection of the organism for joints is associated with its antigenic structure. However, during the past few years many hundreds of cases of pullorum disease due to the standard or intermediate types have been diagnosed in chicks at this Laboratory without joint lesions ever having been seen. Furthermore, since the major part of this article was prepared a further outbreak of arthritis has been seen in broiler chicks which was quite unconnected with the cases described and from which again, a variant strain of *S. pullorum* has been isolated. During the period 1950-1955, 26 outbreaks of disease due to variant strains of *S. pullorum* were diagnosed at this Laboratory

FIG. 2.—Affected left hock of experimental bird 4½ months after infection.

FIG. 3.—Lateral aspect of hock joint in experimental bird showing dark coloured cystic swellings.

(Blaxland, *et al.*, 1956) without any cases of arthritis having been seen. It would seem reasonable to suggest, therefore, that the ability of *S. pullorum* to produce joint lesions is a specific feature of a certain type or types of the variant strain. There can be no corroborative evidence on this point from previous reports of the condition as those from the United States were made prior to Younie's discovery of antigenic variation in *S. pullorum* in 1941, and Reis made no reference to the antigenic structure of the organism he isolated from the tibio-metatarsal joint of an adult fowl in Brazil in 1942.

The orange-yellow colour of the peri-articular tissue has been a constant feature in both field and experimental cases and it is interesting to note that Beaudette recorded this feature in the single chick he examined in 1936. This distinctive pigmentation of the tissue surrounding the joints and the absence of pus may assist in establishing a differential diagnosis from the various other causes of arthritis in fowls.

The fact that 2 fowls experimentally infected with the variant *S. pullorum* isolated from field outbreaks of arthritis, were still giving a negative reaction to the rapid whole blood agglutination test, using stained standard pullorum antigen, over 4 months after infection indicates that "carrier" birds in adult flocks may be difficult to detect without recourse to the use of variant pullorum antigen.

Acknowledgments.—The authors wish to express their gratitude to Mr. R. Ford, B.SC., M.R.C.V.S., D.V.S.M., for details of some of the field investigations, to Mr. A. M. Smither, A.I.M.L.T., and Miss H. Chilcott for technical assistance, and to Mr. E. Clements for the photographs.

References

BEECH, J. R. & FREEBORN, S. B. (1927). *Calif. Agri. Ext. Ser. Cir.* **8.** 5th Edition, 110.
BEAUDETTE, F. R. (1936). *J. Amer. vet. med. Ass.* **89.** 89.
BLAXLAND, J. D., SOJKA, W. J., & SMITHER, A. M. (1956). *J. comp. Path.* **66.** 270.
BUSHNELL, L. D., HINSHAW, W. R., & PAYNE, L. F. (1926). *Kan. Agri. Exper. Sta., Tech. Bul.* **21.**
DOYLE, L. P., & MATHEWS, F. P. (1928). *Purdue Univ. Agri. Exper. Sta., Bul.* **323.**
DURANT, A. J., & MCDOUGLE, H. C. (1932). *Vet. Med. XXVII.* **357.**
GWATKIN, R. (1946). Proc. 18th Ann. Conf. Lab. Workers in Pullorum disease Control, **1.**
———, & GLOVER, J. S. (1930). *Ont. Vet. Coll. Rep.* **61.**
REIS, J. (1942). *Arq. Inst. Biol. Sao Paulo.* **13.** 115.
YOUNIE, A. R. (1941). *Canad. J. comp. Med.* **5.** 164.

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will be opened to taking on new activities if and when desired. Suggestions already made include the publication of a journal, supervising regional meetings of a general nature and co-ordinating meetings of veterinary specialist associations held during the intervals between the World Veterinary Congresses.

It is interesting to note that there has been in existence for the last 10 years a World Medical Association which has grown into a large and influential body, with a secretariat in New York. Among its many activities it publishes a bi-monthly journal.

PERMANENT COMMITTEE OF THE INTERNATIONAL VETERINARY CONGRESS

A meeting of the Permanent Committee was held in Paris on May 22nd, 1958. Twenty countries were represented and the meeting was presided over by Professor W. I. B. Beveridge.

It was decided to recommend to the Spanish national committee to nominate both Señor R. E. Alcázar and Prof. Pedro Carda, respectively President and General-Secretary of the organising committee of the XVIth International Veterinary Congress, as members of the permanent committee in accordance with the statutes of the permanent committee.

In view of the short time available, the Bureau of the permanent committee was authorised by the meeting to make the selection of the subjects and papers and to decide the final programme and details at about the end of June.

The meeting was in accord with, and agreed to submit to the Congress in Madrid, Prof. Beveridge's proposal to alter the name of the International Veterinary Congresses to World Veterinary Congresses, to call the organisation built up in connexion with these Congresses the World Veterinary Association, and the Permanent Committee the Council of the World Veterinary Association.

It was further agreed that for the Congress in Spain the present title would be used, but to have a subtitle "World Veterinary Congress."

A small planning committee consisting of Prof. W. I. B. Beveridge, Prof. Dr. L. de Blieck and Dr. W. R. Wooldridge was nominated, which will study the affiliation of the International Associations of Veterinary Specialists before the Congress in Madrid.

In connexion with Prof. Beveridge's proposal, it is of interest to recall that the first International Veterinary Congress was held in 1863. In accordance with the resolution passed by the VIIIth Congress in 1905, there was established in 1906 a Permanent Committee whose main function was to act as a connecting link between congresses. In the great majority of those countries concerned a national committee has been set up. Several international associations of veterinary specialists (*e.g.* International Veterinary Federation of Zootechnics; International Association of Poultry Pathologists; International Association of Veterinary Food Hygienists) have recently been established, or will be established before long. These specialist associations intend to seek affiliation at the XVIth International Veterinary Congress. Thus during the 95 years since the first I.V.C. great changes have taken place and the organisation built up in connexion with the international veterinary congresses has extended its activities. The changing of the name to World Veterinary Association will lead to its being recognised as the body representing the profession throughout the world and this will give it greater influence in pursuing its present aims, while the way

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B.V.A. Congress, 1958 : Douglas, Isle of Man
September 21st to 26th

PROVISIONAL PROGRAMME

Sunday, September 21st

Time	Congress Social Events, etc.	Scientific Sessions	Tours, Excursions, etc.
	Note.—After the arrival of the Saturday boat from Liverpool, there will be no incoming boat on Sunday.		
p.m. 2.15	(Congress Office open till 6.0 p.m. for registrations —Palace Buildings)		Tour of T.T. Course *or* Angling Excursion
6.30	Choral Evensong, St. Thomas's Church		
8.0	**Council Meeting** (Villa Marina)		
8.30	Lancashire Division "**At Home**" (Villa Marina)		
10.0 to midnight	Film Show in aid of Benevolent Funds (Villa Marina)		

Monday, September 22nd

Time	Congress Social Events, etc.	Scientific Sessions	Tours, Excursions, etc.
a.m. 10.0	**Official Opening of Congress and Civic Welcome** from the Deputy Governor, Isle of Man, and the Mayor of Douglas Followed by :—		
11.0	**Opening of Trade Exhibition**		
12.0	**Annual General Meeting and Presidential Address**		
p.m. 2.30		Metabolic diseases of the ruminant 1. In relation to husbandry *Author :* Mr. L. E. Hughes 2. Vitamin D in milk Fever *Author :* Mr. C. Weighton 3. Acetonaemia *Author :* Dr. J. R. Holmes *Chairman :* Mr. H. F. Hebeler *Openers:* Mr. D. T. Michael Mr. G. B. Stubbs	Skin conditions met with in small-animal practice *Author :* Mr. J. A. Dall *Chairman:* Mr. H. Hewetson *Opener :* Mr. E. F. Lewis	Ladies' Excursion to Ramsey via Snaefell. Visit to "Aristoc" stocking factory. Sulby Glen to Tholt-y-Will. Mooragh Park for Tea
5.0		Films "The Veterinary Surgeon in Civil Defence"	
8.0	**Mayor's Reception and Dance** (Villa Marina)		

Tuesday, September 23rd

Time	Congress Social Events, etc.	Scientific Sessions		Tours, Excursions, etc.
a.m. 9.30		Salmonellosis in animals *Author :* Dr. A. Buxton *Chairman:* Prof. E. White *Opener :* Mr. H. I. Field	Nervous diseases in the dog *Author :* Mr. E. M. Pittaway *Chairman:* Mr. S. Jennings *Opener:* Mr. W. T. Harrow	
10.30				Ladies' Annual General Meeting, followed by coffee
12 noon		**Plenary Session** **Livestock Improvement in Britain** *Author :* Prof. M. M. Cooper *Chairman :* Mr. E. R. Callender		
p.m. 2.30				Ladies' Excursion to Peel City and Castle, via St. John's and Tynwald Hill, Fish Hatchery, Michael ; return via Glen Helen. Grainger's Café, Peel, for tea
		The incidence of respiratory diseases of poultry *Author :* Dr. H. P. Chu *Chairman:* Dr. G. Davies *Opener :* Dr. F. Jordan	Mycotic Dermatitis of sheep in Britain *Author:* Mr. K. Austwick & E. T. Davies *Chairman:* Mr. W. Rolands *Opener:* Mr. G. B. S. Heath	
5.0		Films : " Veterinary Anaesthesia "		
8.0 to 1 a.m.	**Ladies' Guild Dance** (Villa Marina)			

Wednesday, September 24th

Time	Congress Social Events, etc.	Scientific Sessions		Tours, Excursions, etc.
a.m. 9.30		A.I. of cattle : Its development and future *Author :* Mr. G. F. Smith *Chairman :* Mr. J. Moss *Openers :* Mr. J. Bruford Mr. D. H. L. Madden	The cystic hyperplasia pyometra complex in the bitch *Author :* Mr. C. Dow *Chairman :* Mr. A. Shuttleworth *Opener :* Mr. J. W. Heney	
10.30				Ladies' Excursion — Port Erin Fish Hatchery, Port St. Mary to Cregneish and the Sound
12 noon		**Plenary Session** **Placental Transference of Antibodies** *Author :* Prof. F. W. R. Brambell *Chairman :* Mr. A. Thomson (Beckenham)		
p.m. 2.15		Films of general interest	**Demonstrations** at I.o.M. Board of Agriculture and Fisheries Experimental Farm 1. Artificial insemination (Mr. G. F. Smith) 2. Meat inspection techniques (Mr. J. M. Olivant) 3. Mycotic dermatitis (Mr. P. K. C. Austwick)	Visit to the I.o.M. Board of Agriculture and Fisheries Experimental Farm for Exhibition of Manx tweeds, sheep, cats, and kipper-making. Afternoon tea provided by the Board at 4.30 p.m.
7.45 for 8.0	**Banquet** (Villa Marina)			

Thursday, September 25th

Time	Congress Social Events, etc.	Scientific Sessions		Tours, Excursions, etc.
a.m. 9.30		Diseases of the external auditory meatus in the dog and cat *Author :* Miss J. O. Joshua *Chairman :* Mr. G. Stubbs *Opener :* Mr. T. Denholm	The role of the veterinarian in public health *Author :* Mr. C. G. Allen *Chairman:* Mr. W. Tweed *Opener :* Dr. J. M. Ross Mr. H. E. Bywater	
10.30				Ladies' Excursion to Manx Museum escorted by R. B. Moore, Esq., O.B.E.
12 noon		**Plenary Session** **The Global Picture of Animal Disease** *Author :* Sir Thomas Dalling *Chairman :* Mr. J. McC. Ingram		
p.m. 2.15				Golf Competition (Pulrose Links). Organiser : Mr. R. H. Hawkins
2.30		Disorders of the lactating sow and new-born pig *Author :* Mr. N. H. Brooksbank *Chairman:* Mr. D. Oliver *Opener :* Dr. D. Luke	Fore-limb lameness in the horse *Author :* Dr. A. C. Fraser *Chairman:* Mr. T. S. Anderson *Opener:* Mr. J. S. M. Cosgrove	Ladies' Excursion via Manx Electric Railway Coastal run to Ramsey (1¼ hours each way) *or* (Weather permitting) Optional Ladies' tour to summit of Snaefell via Mountain Railway
5.0		Film		
8.0	**Reception by Chairman and Members of I.o.M. Board of Agriculture and Fisheries**(GaietyTheatre)			

Friday, September 26th

Time	Congress Social Events, etc.	Scientific Sessions	Tours, Excursions, etc.
a.m. 9.30		The responsibilities of the veterinary surgeon *Author :* Mr. C. C. Stevens *Chairman :* Mr. H. Sumner *Opener :* Dr. J. K. Walley	
10.30			Ladies' Excursion to Castle Rushen
12 noon		Congress Photograph	
p.m. 2.30		Dystokia in Cattle *Author :* Dr. L. G. Anderson *Chairman :* Prof. J. G. Wright *Opener :* Mr. H. Holroyd	Ladies' Excursion : Mystery Tour. Afternoon tea provided Ellerslie Farms, Ltd.
5.0	**Adjourned Annual General Meeting and Installation of New President**		
8.0 to 1 a.m.	**President's Reception**		

News and Comment

MEAT INSPECTION

In the course of an article entitled "Weakness in Pig Marketing Arrangements," a correspondent of *The Times* (July 28) made some interesting observations on the siting, equipment, and numbers of abattoirs, in the course of which he referred to the importance of proper *ante-* and *post-mortem* inspection of meat intended for human consumption. The correspondent wrote:—

> The need is for central abattoirs, operating on factory lines, with continuous process from slaughter to packing, equipped with modern plant for processing the entire range of by-products. This has already been achieved in our pig factories and in the developing slaughter points of the Fatstock Marketing Corporation. Such modern factory units make possible a higher return to the producer and a wider range of improved products to the consumer.
>
> The movement since decontrol towards increasing the numbers of slaughterhouses is to be deplored because it will lead to inefficiency in the slaughtering and processing of the country's pigs and fatstock; it is doubly unfortunate because it also inhibits a proper *ante-mortem* and *post-mortem* examination of animals in the interests of public health. It can only be damaging to producer and consumer alike.

Having regard to the profession's long-held and frequently expressed views upon the importance of *ante-* and *post-mortem* inspection by veterinary surgeons, the President of the B.V.A wrote to *The Times*, and his letter, in the following terms, was published on August 6th.

SLAUGHTERHOUSES

Sir,—I read with great interest the remarks of your correspondent on July 28th on the subject of slaughterhouses. The British Veterinary Association would support wholeheartedly his observation that the increase in the numbers of slaughterhouses "is doubly unfortunate because it also inhibits a proper *ante-mortem* and *post-mortem* examination in the interests of public health." It may be known to your readers, Sir, that this Association has pressed upon successive Governments the importance of *ante-* and *post-mortem* inspection of food animals by veterinary surgeons, who are in our judgment the only body of professional men qualified by training and experience for this work.

Perhaps you will allow me to observe the anomaly by which imported meat has to bear a veterinary certificate from the country of origin, while home-killed meat requires no such certificate. Among civilised nations, England (as opposed to Scotland) is almost alone in not making use of the services of the veterinary profession in the inspection of meat intended for human consumption.

I am, Sir, yours faithfully,
J. McCONNACHIE INGRAM,
President, British Veterinary Association.

THE BENJAMIN WARD RICHARDSON LECTURE

This lecture, delivered annually under the auspices of the Royal Society of Health, will be given this year at the Society's headquarters, 90, Buckingham Palace Road, London, S.W.1, on December 10th at 2.30. The lecturer will be Mr. L. B. A. Grace, M.R.C.V.S., D.V.S.M., chief technical adviser on meat inspection to the Ministry of Agriculture, and his subject is "World Standards of Meat Inspection."

ANIMAL HEALTH TRUST EDUCATIONAL AWARDS

The Animal Health Trust announce the following educational awards for the period 1958-9:—

Wellcome Fellowship

Mrs. M. E. Rose, B.SC., M.R.C.V.S., Department of Animal Pathology, Cambridge, to undertake (1) an investigation of the relationship between various members of the Coccidia, using immunological techniques, in particular the gel diffusion method of Ouchterlony; and (2) extension of the present work on the immune responses of rabbits to *E. stiedae*, to the immune responses, if any, of poultry to their Coccidia. This work will be carried out at the Department of Animal Pathology, Cambridge, and subsequently at the Houghton Poultry Research Station, Huntingdonshire. For the past 3 years Mrs. Rose has been studying the immunology of parasitic disease at Cambridge as an Animal Health Trust research training scholar.

Research Training Scholarships

Mr. B. A. Baldwin, B.V.M., Royal Veterinary College, London. To enable him to develop methods of assessing the state of consciousness and sensory perception in domestic animals and the physiological aspects of stress associated with the various methods of slaughter of animals. This work will be carried out at the Department of Physiology of the Royal Veterinary College under the supervision of Dr. F. R. Bell.

Dr. A. D. Care, M.A., at the Royal (Dick) School of Veterinary Studies, Edinburgh, to enable him to complete his training for a veterinary degree.

Mr. A. R. Gray, B.A., Fitzwilliam House, Cambridge, to enable him to study the pathology of virus diseases at the Department of Animal Pathology, Cambridge, under Professor W. I. B. Beveridge.

Mr. R. F. Sturrock, B.SC., Imperial College, London, to enable him to study parasitology with special reference to the responses of free-living stages of parasitic nematodes at the Imperial College under Professor B. G. Peters.

Evans Final Year Studentships

Royal Veterinary College, London: to be announced in December.

University of Cambridge: Mr. K. Entwistle, 80, Alexandra Road South, Manchester.

University of Liverpool: Mr. P. A. S. Davidson, Regents Road, St. Helens, Lancs., jointly with Mr. G. S. P. Wild, Alfreton, Derbyshire.

University of Glasgow: Mr. George B. Lamont, Dunblane, Perthshire.

Royal (Dick) School of Veterinary Studies, Edinburgh: Miss M. A. Davis, Salisbury, Southern Rhodesia, jointly with Mr. G. H. K. Lawson, Cluny Drive, Edinburgh.

University of Bristol: Mr. K. J. Betteridge, Dibden, Southampton.

Veterinary College of Ireland: Mr. T. O. McDonald, Tullow, Co. Carlow, Eire.

UNIVERSITY NEWS

Bristol

A symposium on Animal Mycoses was held at the Veterinary School, Langford, from July 17th to 23rd. The symposium was arranged by the University of Bristol, Department of Veterinary Medicine, in collaboration with Mr. P. K. C. Austwick of the Ministry of Agriculture, Fisheries and Food Veterinary Laboratory, Weybridge (by arrangement with the Director, Dr. A. W. Stableforth).

Each day was devoted to the consideration of a related group of subjects and included papers, demonstrations, and practical classes. Amongst the subjects covered were:—

The history and development of veterinary mycology.

Sources of infection and transmission of mycoses.

Morphology of fungi in animal tissues.

Ringworm—its treatment and control.

Mucormycosis and mycotoxicoses.

Moniliasis.

Actinomycete infections, including mycotic dermatitis of sheep.

Avian and mammalian aspergillosis and mycotic abortion.

The speakers included Dr. G. C. Ainsworth, Mr. P. K. C. Austwick, Dr. E. C. Appleby, Messrs. J. D. Blaxland, E. T. Davies, J. T. Done, Dr. J. C. Gentles, Mr. I. M. Lauder, Dr. C. J. La Touche, Messrs. E. A. McPherson, A. D. Osborne, J. B. Spence, and J. A. J. Venn.

Among those attending the symposium were several members of the Veterinary Investigation Staff of the Ministry of Agriculture, Fisheries and Food, representatives from veterinary schools and from related disciplines within Bristol University.

At the final session it was agreed that the symposium had served a most useful purpose in providing a forum for the discussion of recent advances in veterinary mycology and tribute was paid to the work of Professor C. S. Grunsell, Mr. P. K. C. Austwick, and Mr. A. I. Wright who had been responsible for the arrangements.

ADVISORY PANEL FOR P.I.D.A.

The Pig Industry Development Authority have announced the appointment of a panel to advise them on the application of research, other than veterinary research, to the economic production of pigs.

The members of this advisory panel are: Professor M. McG. Cooper, B.AGR.SC. (N.Z.), DIP.RUR.ECON. (OXON), B.LITT. (OXON), of the School of Agriculture in the University of Durham; Mr. J. A. Crichton, M.B.E., M.A., B.SC. (AGR.), of the Rowett Research Institute, Aberdeen; Professor J. Morrison, B.SC., of the Agricultural Research Institute at Hillsborough, Northern Ireland; and Professor A. Robertson, M.A., B.SC., PH.D., M.R.C.V.S., F.R.I.C., F.R.S.E., of the Royal (Dick) School of Veterinary Studies, University of Edinburgh, who is also chairman of P.I.D.A.'s recently formed Veterinary Advisory Committee. Mr. Ian C. Beattie, M.AGR.SC., is to be the secretary of both these advisory bodies.

THE REGISTER OF VETERINARY SURGEONS

Under the provisions of Section 25 (3) of the Veterinary Surgeons Act, 1948, and Statutory Instrument No. 1729 of 1957, the names of the undermentioned gentlemen were removed, at their own request, from the Register of Veterinary Surgeons on July 24th, 1958:—

Bett, Ralph Frearson, 219, Central Road, Hatfield, Salisbury, S. Rhodesia; Collins, Walter Turner, 38, Mount St. John Avenue, Epsom, Auckland, New Zealand; Jones, John Howard, 85, Belmont Road, Bristol, 6; and O'Brien, David Lucius, Scottsdale, Tasmania, Australia.

Under the provisions of Section 13 (1) of the Veterinary Surgeons Act, 1881, the name of Mr. L. R. Hutson, Department of Agriculture, Trinidad, B.W.I., was entered on the Commonwealth List of the Register of Veterinary Surgeons on July 31st, 1958.

R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession:—

JARRATT, William Farrow, Captain late R.A.S.C., Major R.A.V.C. (retd.), Grange Walk, Robb Street, Georgetown, British Guiana. Graduated December 13th, 1932, at Dublin. Died July 31st, 1958.

MCCONNELL, William Frederick, Rooiberg, Ledbury, Herefordshire. Graduated December 20th, 1904, at Edinburgh. Died July, 1958, aged 75 years.

PERSONAL

Dr. Ruth Allcroft has attended a meeting in Paris, on July 20th to 25th, held under the auspices of the Organisation for European Economic Co-operation, to discuss "The Application of Atomic Science in Agriculture and Food."

Mr. E. C. Hulse has attended the 4th International Congress on Biological Products held in Brussels from July 24th to 31st.

Mr. D. R. Melrose has recently returned from a visit to Norway, Denmark, and Sweden where he went to study and exchange information on methods of artificial insemination.

Dr. A. W. Stableforth is attending the following International Meetings in Stockholm in August: the International Bacteriological Nomenclature Committee's Sub-Committee on Streptococci and Pneumococci; the International Congress for Microbiology, and the Joint W.H.O./F.A.O. Expert Group on Zoonoses.

Dr. S. B. Kendall will be going to the International Parasitology Congress in Budapest which takes place between September 14th and 21st.

Lt.-Col. V. H. Bartrum was elected Master of the Worshipful Company of Tylers and Bricklayers at a Court Meeting on July 17th. It is of interest to learn from him that though the date of origin of the Livery is obscure, the first charter was received from Queen Elizabeth I. Colonel Bartrum was first nominated to the Worshipful Company by his uncle, John Bartrum, who was Master from 1911 to 1912.

COMING EVENTS

September

17th (Wed.). Meeting of the North Wales Division at Glynllifon, Caernarvon.

21st to 26th (Official Opening, Monday, September 22nd). 76th Annual Congress of the British Veterinary Association in Douglas, Isle of Man.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Fowl Pest

Cambs. 88, The Avenue, March; White House Farm, Stags Holt, March (July 26); Top Hakes Farm, West Fen, March (July 29); The Orchard, Elliott Road, March (July 31).

Essex. 455, Ipswich Road, Colchester (July 30).

Flints. Plas yn ddol, Fford Isa, Prestatyn (July 29).

Hants. The Laurels, Mornhill Road, Winchester (July 25).

Herts. Harper Lane, Shenley, St. Albans (July 31).

Norfolk. Fir Tree Farm, Weybread, Diss; 65, The Street, Bracon Ash, Norwich; 1, 2, and 4, Council Houses, Bracon Ash, Norwich (July 25); The Rosary, Brick Kiln Road, Hevingham; Low Lane, Hevingham; Grange Farm, Hevingham; Jarrahdale, The Wilderness, Stratton Strawless, Norwich (July 26); Vicarage Farm, Wicklewood, Wymondham (July 27); Brick Kiln Road, Hevingham, Norwich (July 29); Ivy Farm, Brick Kiln Road, Hevingham; Mere Farm, Wicklewood, Wymondham (July 29); East Side of Road at Lodge Farm, Mendham, Harleston; The Cabin, Mattishall, Dereham (July 30).

Suffolk. Homestead Cottage, Rumburgh, Halesworth; Hollytrees, Mendham (July 26).

Sussex. Diamond Farm, Horam; West View, Maynards Green, Horam; Bridge Lyn and Windyridge, Maynards Green, Horam; Cottenham, Tugwell Lane, Maynards Green, Horam (July 29).

Swine Fever

Cambs. M. P. Fraybourn Farm, Bourn (July 25).

Dorset. The Tigers Head Inn, Rampisham, Dorchester (July 30).

Flints. Kimmerton Hall, Kinnerton (July 25); Woodlands, Argoed, Mold.

Leics. Piggeries, Gartree Road, Oadby (July 25).

Norfolk. Glebe Farm, Ringland, Norwich (July 25); Vine Cottage, Badley Moor, Dereham (July 28); North View, Metfield, Harleston (July 29); Gertrude Road Allotments, Norwich; Smallworth Farm, Garboldisham, Diss (July 30); Glebe Farm, Horsford, Norwich (July 31).

Northants. Piggeries, The Hollow, Stanwick, Wellingborough (July 30).

Northumberland. Blaketown Allotments, Seghill, Dudley (July 29).

Notts. Harfield, Newark Road, Tuxford, Newark (July 25).

Rutland. Woolfox Aerodrome, Oakham (July 30).

Somerset. The Piggeries, Seavington St. Mary, Ilminster (July 28).

Suffolk. Ivy Farm, Kelsale, Saxmundham (July 25); Builders Yard, Rougham, Bury St. Edmunds; Gable Cottage, Aldham, Hadleigh (July 28); Rectory Road, Bacton, Stowmarket; Church Farm, Halesworth (July 31).

Surrey. Nutwood Farm, Gatton Park Road, Reigate (July 31).

Warwicks. The Piggery, Northumberland Road Allotment, Leamington Spa (July 25).

Wilts. Bedborough Farm, London Road, Devizes (July 25); 143, Swindon Road, Wroughton, Swindon (July 28).

Letters to the Editor

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

GENERAL

A Scale of Veterinary Fees

Sir,—Since my first letter was published regarding a proposed scheme for establishing a scale of veterinary fees, I have had several interesting letters on the subject.

One which I am sure will interest readers in this country was from the publisher of *Modern Veterinary Practice*, an American journal published in California. He kindly enclosed an article which appeared in the edition of April 15th, 1958, entitled "A Plan to Standardise Fees On a National Scale."

This plan embodied several features corresponding to those I had in mind for this country.

The chief of these was differing scales of fees depending on the type of practice and the services offered. It might be of interest to note that in the lowest scale of fees mentioned, the following were included. I have roughly converted dollars into pounds sterling at three dollars to the pound.

Examining animal at surgery	£1
Examining animal in the home	£2
Night visit	£3
Spay bitch, mature	£7
Spay cat	£3
Castration cat	£1-£2
Destruction dog	£2
Inoculation dog distemper	£4

It would seem from the above typical examples of fees, that even allowing for the higher cost of living in the U.S.A., the American veterinarian on the lowest scale of fees is better off than his British counterpart who has no scale to guide him.

Briefly, to repeat the scheme I had in mind: a comprehensive questionnaire on present charges to be inserted in the SUPPLEMENT to THE VETERINARY RECORD. This would be filled in and returned to a central office for analysis of the answers. Several scales of fees would be drawn up, consisting of maximum, minimum, and average charges being made at the moment for standard procedures. The type of practice related to each scale would be stated, and the complete results published, again in the SUPPLEMENT.

In this way national coverage of the profession would be obtained in a very quick and simple manner. There would be no need to go into the costings of individual practices as this would be covered by the different scales of fees applying.

I am confident that a useful purpose would be

served by such a scheme and have asked the B.V.A. to support it. I have this week received their official answer in which they state the scheme is unnecessary.

Yours faithfully,
V. A. HARRISON.

Derwent,
Church Street,
Matlock.
July 17th, 1958.

[Our correspondent's suggestions would appear to be superfluous, at least for the time being, in view of the attention being given to overhead costs, fees, etc., by the Society of Practising Veterinary Surgeons and the British Small-animal Veterinary Association. —*Editor.*]

New Mileage Allowance for L.V.I.s

Sir,—In common with all L.V.I.s, I have just received from the Ministry a memorandum on mileage allowances. This memorandum informs us that in these days when the price of cars and all their necessary expenses are at a higher level than ever, we are expected to accept a much reduced payment.

We are to receive 3¾d. for every mile and £14 10s. at the end of the first 1,000 miles. This means, in effect, slightly less than 7½d. per mile as opposed to 9¼d. previously. In addition we are only to receive this princely sum of £14 10s. on completing 1,000 miles. We are apparently to receive nothing for 999 miles nor can such a total be carried forward to the next year.

It would be interesting to know if the R.C.V.S. and B.V.A. have been consulted on this decision, and if not what steps are intended in order to improve the position before it is too late.

Yours faithfully,
M. J. R. STOCKMAN.

114, Hillside Gardens,
Barnet,
Herts.
July 26th, 1958.

Sir,—What justification has the Ministry of Agriculture to send all L.V.I.s a memorandum reducing our mileage allowances? The old method of so much a mile was fair, but the new method is both unrealistic and uneconomical. Let me point out that unless we do 1,000 miles per year only 3¾d. is paid per mile. Also, that as the rate starts on July 27th and that the end of the year for Ministry mileage is on December 31st, they will be paying most of us unfair rates for the rest of the year. May I compare, in tabular form, the amount paid to us last year and what it would be under the new rate?

Member	Mileage for 1957	Mileage allowance 1957	New rates
		£ s. d.	£ s. d.
A	1,188	45 15 9	33 1 3
B	2,901	106 3 6	81 11 6
C	784	25 6 4	12 5 0
D	1,362	43 19 7	35 15 7½
	6,235	221 5 2	162 13 4½

How does the Ministry explain that motoring in 1958 can be so much cheaper?

Did the Ministry enter into any agreement with our representative body, the B.V.A., or was the Association, like us, completely in the dark until this memorandum arrived?

Yours faithfully,
P. J. WATERS.

93, Head Street,
Halstead,
Essex.
July 26th, 1958.

[The B.V.A. were not consulted about the revised mileage allowances. As soon as they became known a strong letter of protest was sent to the Ministry.—*Editor.*]

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN
Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-Mouth	Fowl Pest	Sheep Scab	Swine Fever
1st to 15th July, 1958		5	—	—	13	—	75
Corresponding period in	1957	9	—	4	40	—	75
	1956	19	2	—	31	—	34
	1955	19	—	—	73	—	56
1st January to 15th July, 1958		96	3	111	322	—	766
Corresponding period in	1957	236	5	28	495	—	530
	1956	1,037	8	13	354	—	421
	1955	461	1	6	344	—	904

TUBERCULOSIS (ATTESTED HERDS) SCHEMES

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at 30th June, 1958, was as follows :—

England	Wales	Scotland	Total (Great Britain)
116,224	35,619	42,948	194,791

TUBERCULOSIS ORDER OF 1938

The number of bovine animals slaughtered under the Tuberculosis Order of 1938 during the period 1st April to 30th June, 1958, was 89.